

NEW
MODEL 620
DIGITAL VOLTMETER
WITH
autoject



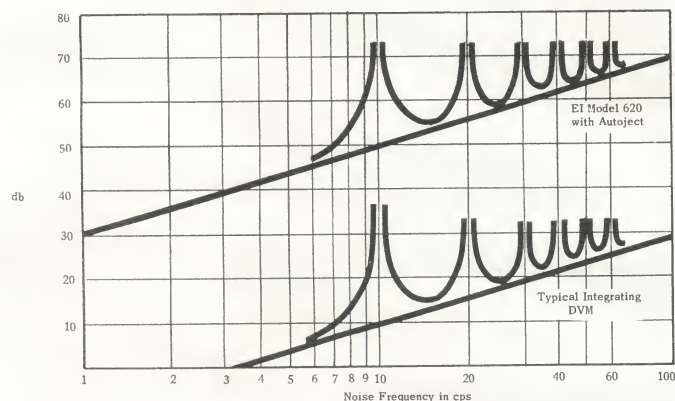
Honeywell

HIGH PERFORMANCE IN A **NEW** LOW COST PACKAGE

The Model 620 Digital Measuring Instrument is a low cost, portable, simple to operate digital voltmeter-ratiometer with features normally found only in units costing two to three times as much. All circuitry, including logic, is completely solid state.

This guarded, differential input instrument is designed to provide an automatic, high speed, accurate measurement of DC voltages and DC/DC ratios in the presence of high noise levels. The design highlight of the Model 620 is high speed noise rejection, designated AUTOJECT.* This exclusive AUTOJECT principle of noise cancellation is combined with the integration technique of voltage measurement. AUTOJECT, in effect, synchronizes the sample period with the noise component such that the noise integrates to zero irrespective of its phase or frequency.

AUTOMATIC NOISE REJECTION INDEPENDENT OF FREQUENCY, THROUGH INTEGRATION



AUTOJECT, in combination with the guarded differential input, provides a minimum of 140db common mode rejection and a minimum normal mode rejection of 60db at any noise frequency above 30 cps. This is accomplished in a fixed sample time of 100 msec. Now for the first time, long sample durations of one to three seconds, previously necessary in order to obtain such high noise rejection at low frequencies, have been eliminated.

The Model 620 measures the unknown analog voltage, converts it into digital form, displays the value on its five digit readout and simultaneously presents it in 10 line decimal electrical output format for automatic recording systems.

The flexibility of the Model 620 allows the selection of features as necessary to fit your present requirements or budget.

*Patent pending

5 DIGIT READOUT

Shown is the actual color and contrast of display!

A polarized light filter is utilized for providing extremely high contrast red numerals against a solid black background for maximum definition under extremely high ambient light conditions.

Long life neon bulbs are used with new, exclusive, built in illumination condensers for maximum brilliancy and even illumination of each bar segment.

All numerals are on a single plane which provides extremely wide angle viewing without parallax.

Automatic self check of all bar segments is provided during the encoding cycle. All decades are matrixed to display the figure eight (8) which indicates the proper operation of all line segments. Additional function indicators are built in for AC, Resistance and Preamplifier.

POLARITY and RANGE INDICATION

Signal polarity is automatically indicated and is the true integral value over the entire sample period and is therefore not subject to error. Decimal point indicates correct range both in DC and Ratio operation.

REMOTE CONTROL

Allows external programming of function, range and encode.

ELECTRICAL OUTPUTS

Provides 10 line decimal information for automatic printer or recorder operation.

REAR INPUTS





INPUT SECTION

Guarded, differential and completely isolated from chassis and electrical outputs.

EXTERNAL REFERENCE

Differential and guarded with high input impedance for minimum external reference loading. Reference common and signal common need not be the same.

SINGLE FUNCTION CONTROL

Ratio - choice of external reference voltage range.
DC - manual or automatic selection of ranges.
Remote - remote selection of function and range.

SINGLE ENCODE CONTROL

Power, variable sample rate, single encode and hold. When power switch is actuated, meter is automatically placed in the maximum sample rate position.

CALIBRATION CONTROLS

Centrally located for maximum efficiency.

RATIO and/or AUTO RANGING

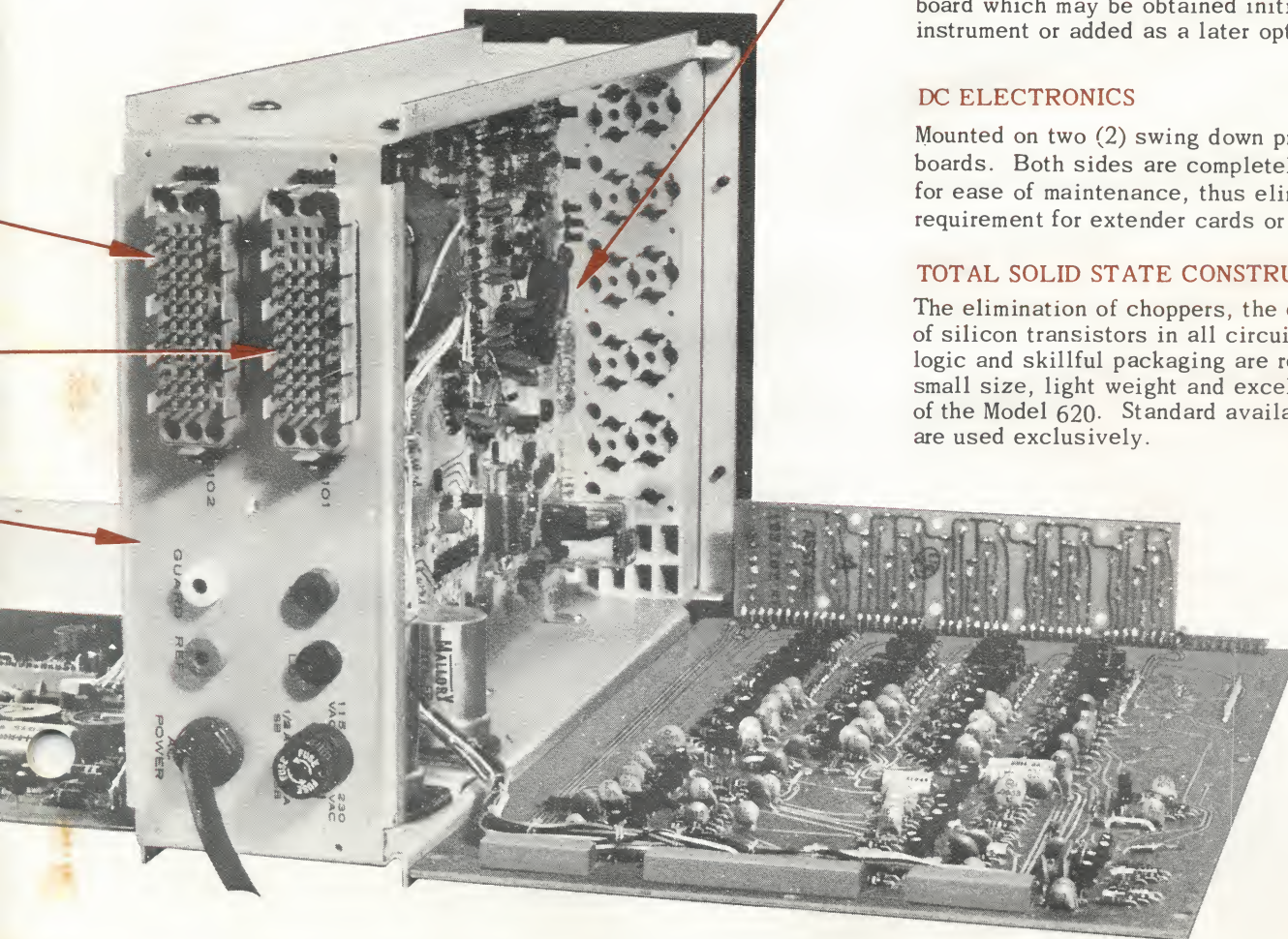
These circuits are mounted on a separate plug-in board which may be obtained initially with the instrument or added as a later option.

DC ELECTRONICS

Mounted on two (2) swing down printed circuit boards. Both sides are completely accessible for ease of maintenance, thus eliminating the requirement for extender cards or cables.

TOTAL SOLID STATE CONSTRUCTION

The elimination of choppers, the extensive use of silicon transistors in all circuits including logic and skillful packaging are responsible for small size, light weight and excellent reliability of the Model 620. Standard available components are used exclusively.



Specifications

DISPLAY: 5 digits

DC RANGES: full scale

± 9.999 plus overrange to ± 12.000 volts

± 99.99 plus overrange to ± 120.00 volts

± 750.0 volts

RANGING:

manual - front panel control

automatic - 10 msec per range (20 msec worst case) meter will up range at 118% of F.S. and down range at 10.5% of F.S. assuring no loss of resolution near the range transfer points.

remote - external contact closures

RATIO RANGE: 1:0.0000 to 1:1.2000

RATIO RANGING:

single fixed range with choice of 10 or 100 volt ($\pm 20\%$) external reference

SENSITIVITY:

1 millivolt on basic range, DC and Ratio

RESOLUTION: .01% of F.S.

ACCURACY:

$\pm .01\%$ of reading $\pm .01\%$ of F.S. at ASA reference conditions

$\pm .05\%$ of reading $\pm .01\%$ of F.S. at ASA rated conditions (6 months)

REFERENCE:

internal Zener regulated supply

INPUT IMPEDANCE:

DC and ratio, 10 volt range - potentiometric (greater than 1,000 megohms)

DC and ratio, 100 volt range - 10 megohms

DC only, 750 volt range - 10 megohms.

This represents a fixed, constant impedance throughout the entire encode cycle.

EXTERNAL REFERENCE INPUT IMPEDANCE:

potentiometric (greater than 1,000 megohms) to 10 volt reference

10 megohms to 100 volt reference

POLARITY: automatic polarity indication

COMMON MODE REJECTION: 140db at 60cps

maximum common mode voltage, 500 volts peak with 1K ohm source unbalance

Ordering Information

OPTIONS:

620 - DC manual ranging \$ 995.00

620-1 - DC and Ratio \$1220.00

620-2 - DC and autorange \$1130.00

620-12 - DC, Ratio and autorange \$1385.00

AUTOJECT (normal mode and superimposed noise): 60db minimum rejection from 30 cps upwards, increasing at 20db per decade regardless of noise frequency with no degradation of encoding time.

SAMPLE TIME: 100 milliseconds (aperture time)
Maximum - 4 readings per second

ELECTRICAL OUTPUTS:

10 line decimal outputs: ten outputs for each decade, corresponding to the numbers 0 - 9 plus decimal point and polarity indication.

10 line decimal levels: 0 to +2 volts = true (1)
+10 volts = false (0)

maximum load current: from 0 to 2 volts
50 μ a. at +10 volts

encode complete (print command):

levels - +12 volts = true

0 volts = false

risetime - 1 μ sec. maximum

maximum load current: 4ma at +10 volts

100 μ a. at +1 volt

REMOTE CONTROL:

Ranging - contact closure or solid state switch closure

Function - contact closure or solid state switch closure

Encode - negative going pulse of 12 volts in amplitude maximum of 1 μ sec. rise time and minimum duration of 5 msec.

OPERATING AMBIENT TEMPERATURE:

10°C to 40°C

POWER REQUIREMENTS:

105 - 125 or 210 - 250 volts AC, 50 to 60 cps.

30 watts at 115 volts AC

WEIGHT: 15 pounds

SIZE: 4-1/4 x 8-1/2 x 15-1/2 (portable case)

Additional Features

BUILT IN METER PROTECTION prevents instrument damage on any range.

INSTRUMENT STAND quickly converts into a convenient carrying handle for instant portability. Handsome scuff proof vinyl covered case adds distinctive looks and prevents marring of bench or desk tops.

ADDITIONAL MEASURING CAPABILITY

AC, resistance and preamplifier plug-in may be added by using the basic 620 instrument in conjunction with an accessory rack module. The 620 occupies half of the rack while the plug-in module occupies the other half. Thus all functions DC, Ratio, AC, Resistance and Preamplifier can be provided in one 19 x 5 1/4 inch package.

DATA HANDLING SYSTEMS

Honeywell

DIGITAL VOLTMETERS

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